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Appel Brief
10/004,451

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

In re patent application of:
Johnson et al.

Serial No.: 10/004,451

Filed: July 16, 2002

Group Art Unit: 1763

Examiner: Kackar, Ram N.

Atty. Docket No.: BUR20010219US1

For: SUSCEPTOR POCKET WITH BEVELED PROJECTION SIDEWALL.

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REQUEST OF REINSTATEMENT OF APPEAL

Sir:

Appellants respectfully request that the Appeal filed on March 31, 2003 be reinstated and that this case not be reopened for prosecution. Appellants are submitting herewith a Supplemental Appellants' Appeal Brief. The Board is respectfully requested to reinstate the March 31, 2003 Appeal.

Respectfully submitted,

Dated: June 24, 2005

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PAGE 1/28 * RCVD AT 06/24/05 2:57:24 PM [Eastern Daylight Time] * SVR:USPTO-EFAX-6/30 * DNIS:2738300 * CSID:3012618825 * DURATION (mm-ss):03:46

Appeal Brief
10/064,451

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

In re patent application of:
Johnson et al.

Serial No.: 10/064,451

Filed: July 16, 2002

Group Art Unit: 1763

Examiner: Kackar, Ram N.

Atty. Docket No.: BUR920010219US1

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703-872-9306) on June 24, 2005



Mohammad S. Rahman

For: SUSCEPTOR POCKET WITH BEVELED PROJECTION SIDEWALL

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REQUEST OF REINSTATEMENT OF APPEAL

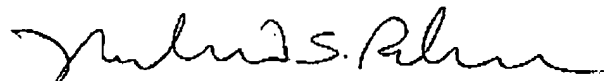
Sirs:

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Respectfully submitted,

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Appeal Brief
10/064,451

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES**

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Johnson et al.

Serial No.: 10/064,451

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SUPPLEMENTAL APPELLANTS' APPEAL BRIEF

Sirs:

This Supplemental Appellants' Appeal Brief is in Supplement of the Appellants' Appeal Brief filed March 31, 2005, which was to appeal the final rejection of claims 1-7, 9-15, and 17-18 in the Office Action dated November 30, 2004. A non-final Office Action was issued May 25, 2005 to reopen prosecution in the application. Appellants' hereby request reinstatement of the Appeal.

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I. REAL PARTY IN INTEREST

The real party in interest is International Business Machines Corp., Armonk, New York, assignee of 100% interest of the above-referenced patent application.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Appellants, Appellants' legal representative or Assignee which would directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

Claims 1-7, 9-15, and 17-18 are all the claims pending in the application and are set forth fully in the attached appendix. Claims 1-18 were originally filed in the application. Appellants filed an Amendent under 37 C.F.R. §1.111 on April 8, 2004 amending the claims. Appellants filed an Amendent under 37 C.F.R. §1.111 on May 27, 2004 further amending the claims. Appellants filed an Amendent under 37 C.F.R. §1.116 on July 28, 2004 further amending the claims and cancelling claims 8, and 16. Appellants filed an Amendent under 37 C.F.R. §1.111 on October 22, 2004 further amending the claims and cancelling claims 8, and 16 and adding claim 19. Appellants filed an Amendent under 37 C.F.R. §1.116 on January 31, 2005 cancelling claim 19. An Advisroy Action was issued on February 18, 2005 indicating that the Amendment filed on January 31, 2005 would be entered for purposes of Appeal, but that the rejections to the claims would be sustained. A Notice of Appeal was filed on February 24, 2005, and an Appeal Brief was timely filed on March 31, 2005, which was to appeal the final rejection of claims 1-7,

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9-15, and 17-18 in the Office Action dated November 30, 2004. A non-final Office Action was issued May 25, 2005 to reopen prosecution in the application. Appellants' have requested reinstatement of the Appeal, with the claims shown in the appendix are shown in their amended form as of the January 31, 2005 Amendment.

Claims 1-7, 9-15, and 17-19 stand rejected under 35 U.S.C. §112, first paragraph. Claims 1-7, 9-15 and 17-18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Honma, et al. (U.S. Patent No. 6,596,086), hereinafter referred to as "Honma", in view of Hoshina, et al. (U.S. Patent No. 5,785,764), hereinafter referred to as "Hoshina". Claims 1-7, 9-15 and 17-18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Zhao, et al. (U.S. Patent No. 5,968,379), hereinafter referred to as "Zhao", in view of Hoshina.

IV. STATEMENT OF AMENDMENTS

An after-final Office Action dated November 30, 2004 stated that claims 1-7, 9-15, and 17-19 were rejected. Appellants filed an Amendment under 37 C.F.R. §1.116 on January 31, 2005 cancelling claim 19. An Advisory Action was issued on February 18, 2005 entering the January 31, 2005 Amendment for purposes of appeal. The claims shown in the appendix are shown in their amended form as of the January 31, 2005 amendment.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The Appellants' invention is described in paragraphs [0011] through [0024] of the specification and shown in Figures 1 through 3 of the application as originally filed. The Appellants' invention provides an apparatus 100 for holding a substrate 120, wherein the apparatus 120 comprises a pocket 125 adapted to hold the substrate 120, wherein the pocket 125

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comprises an inner edge 110 and a lower surface (shown as an unnumbered structure in FIG. 2; the lower surface of the pocket 125 constitutes the surface where the substrate 120 rests on); a plurality of projections 115 extending radially inward from the inner edge 110; an opening 210 in the lower surface; and a pin 215 disposed in the opening 210, the pin 215 being configured for lifting the substrate 120 from the pocket 125; wherein the projections 115 have a beveled edge (see FIGS. 2 and 3 and paragraph [0021] of specification), such that an acute angle 201 greater than 80 degrees occurs between the lower surface and the beveled edge (see FIG. 3 and paragraph [0021] of specification), and wherein the projections 115 reduce an area of contact between the inner edge 110 and the substrate 120 (see paragraph [0019] of specification). The apparatus 100 comprises a susceptor for holding the substrate 120 (see paragraph [0019] of specification). Moreover, the projections 115 have a "C" shape (see paragraph [0018] of specification and FIG. 1). Additionally, the projections 115 maintain a gap between a sidewall of the substrate 120 and the inner edge 110 (see paragraph [0018] of specification and FIGS. 2 and 3). Furthermore, the acute angle 201 comprises an angle not greater than 85 degrees (see paragraph [0021] of specification). Also, the projections 115 prevent the substrate 120 from moving within the pocket 125 (see paragraph [0022] of specification).

Another aspect of the invention provides an apparatus 100 for holding a substrate 120, the apparatus 100 comprising a pocket 125 adapted to hold the substrate 120 (see paragraph [0018] of specification), wherein the pocket 125 comprises an inner edge 110 and a lower surface (shown as an unnumbered structure in FIG. 2; the lower surface of the pocket 125 constitutes the surface where the substrate 120 rests on); a plurality of projections 115 extending radially inward from the inner edge 110; and an opening 210 in the lower surface; wherein the projections 115 have a beveled edge (see FIG. 3 and paragraph [0021] of specification), and

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wherein an acute angle 201 greater than 80 degrees occurs between the lower surface and the beveled edge (see FIG. 3 and paragraph [0021] of specification). The projections 115 reduce an area of contact between the inner edge 110 and the substrate 120 (see paragraph [0019] of specification). Moreover, the apparatus comprises a susceptor for holding the substrate 120 (see paragraph [0019] of specification). Also, the projections 115 have a "C" shape (see paragraph [0018] of specification and FIG. 1). Additionally, the projections 115 maintain a gap between a sidewall of the substrate 120 and the inner edge 110 (see paragraph [0018] of specification and FIGS. 2 and 3). Furthermore, the acute angle 201 comprises an angle not greater than 85 degrees (see paragraph [0021] of specification). The projections 115 prevent the substrate 120 from moving within the pocket 125 (see paragraph [0022] of specification).

Another aspect of the invention provides a susceptor 100 for holding a wafer 120 (see paragraph [0018] of specification), the susceptor 100 comprising a pocket 125 adapted to hold the wafer 120 (see paragraph [0018] of specification), wherein the pocket 125 comprises an inner edge 110 and a lower surface (shown as an unnumbered structure in FIG. 2; the lower surface of the pocket 125 constitutes the surface where the substrate 120 rests on); a plurality of projections 115 extending radially inward from the inner edge 110; and a device 215 positioned below the pocket 125, the device 215 being configured for lifting the wafer 120 from the pocket 125; wherein the projections 115 have a beveled edge (see FIG. 3 and paragraph [0021] of specification), and wherein an acute angle 201 greater than 80 degrees occurs between the lower surface and the beveled edge (see paragraph [0021] of specification). Moreover, the acute angle 201 is not greater than 85 degrees (see paragraph [0021] of specification). Furthermore, the projections 115 have a "C" shape (see paragraph [0018] of specification and FIG. 1).

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VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The issues presented for review by the Board of Patents Appeals and Interferences are whether claims 1-7, 9-15, and 17-18 fail to comply with the written description requirement under 35 U.S.C. §112, first paragraph, and whether claims 1-7, 9-15, and 17-18 are unpatentable under 35 U.S.C. §103(a) as being unpatentable over Honma in view of Hoshina, and whether claims 1-7, 9-15 and 17-18, are unpatentable under 35 U.S.C. §103(a) as being unpatentable over Zhao in view of Hoshina.

Claims 1-7, 9-15, and 17-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. According to the Office Action of May 25, 2005, the claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Claims 1-7, 9-15 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honma in view of Hoshina. According to the Office Action, Honma discloses a susceptor having a pocket to hold substrate having an inner edge and a lower surface (Fig. 1, element 5a) and opening in lower surface for lift pins to lift the substrate (element 5b). The Office Action admits that Honma does not disclose plurality of beveled edge projections extending radially inward from the inner edge. However, the Office Action suggests that Hoshina discloses a susceptor with a pocket to hold a substrate, and a plurality of C shaped projections (Fig. 5A, element 17) extending radially inwards at an acute angle of 80 degrees (complementary 10 degrees) with respect to bottom of pocket (Col. 3 lines 10-43 and Col. 7 lines 5-15). Inherently, according to the Office Action, these projections maintain a gap below the projection and restrict the movement of the standard substrate with a straight edge.

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The Office Action concludes that it would have been obvious for one of ordinary skill in the art at the time of invention to have a plurality of projection in order to hold substrate in position with a very small area of contact. Regarding the limitation of the angle being even slightly greater than 80 degrees, the Office Action states that "it should be understood that slight variability of angle would be obvious in view of experimental optimization and difficulty of maintaining close tolerance."

Claims 1-7, 9-15 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhao in view of Hoshina. According to the Office Action, Zhao discloses a susceptor having a pocket to hold substrate having an inner edge and a lower surface (Fig. 2, element 34) and opening in lower surface for lift pins to lift the substrate (Col. 11 line 1-18 and Col. 19 lines 1-8). The Office Action admits that Zhao does not disclose plurality of beveled edge projections extending radially inward from the inner edge. However, the Office Action suggests that Hoshina discloses a susceptor with a pocket to hold a substrate, and a plurality of C shaped projections (Fig. 5A, element 17) extending radially inwards at an acute angle of 80 degrees (complementary 10 degrees) with respect to bottom of pocket (Col. 3 lines 10-43 and Col. 7 lines 5-15). Inherently, according to the Office Action, these projections maintain a gap below the projection and restrict the movement of the standard substrate with a straight edge. The Office Action concludes that it would have been obvious for one of ordinary skill in the art at the time of invention to have a plurality of projection in order to hold substrate in position with a very small area of contact.

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VII. ARGUMENT

A. The Rejections Based on 35 U.S.C. §112, First Paragraph

The Office Action states that “[t]he specification does not discuss the acute angle to be greater than 80 degrees.” However, paragraph [0021] of the specification, as originally filed, clearly states:

Figure 2 also illustrates angles 200, 201 that [are] formed by the beveled side wall of the projection 115. The region 205 is shown in magnified form in Figure 3. The angle 200 is generally between 5 and 10 degrees, although the invention is not limited to this specific range of angles, but is applicable to all ranges of appropriate angles, depending upon the specific application being addressed. Therefore, the angle 201 comprises an acute angle. Thus, the angle between the bottom of the pocket 125 and the linear inclined surface of the projection 115 is less than 90 degrees (e.g., 80-85 degrees).

Contrary to the erroneous conclusion reached in the Office Action, there is clear disclosure in the specification, as originally filed, of an angle greater than 80 degrees. Clearly, there appears to be a misunderstanding of basic mathematical principles. Basic mathematical rules provide that the phrase “greater than” means non inclusive of the lower numerical range. In the Appellants’ case, “greater than” means greater (but not equal) to 80 degrees. Similarly, an acute angle not greater than 85 degrees means less than or equal to 85 degrees according to basic mathematical concepts. Apparently, the position taken in the Office Action, for which the rejection is being based upon, is contrary to the Appellants’ interpretation of basic mathematical concepts.

The Office Action indicates that no disclosure and appreciation of any unexpected advantage of an angle greater than 80 but not exactly 80 is required (see page 3 of Office Action of May 25, 2005). However, no such requirement is dictated by 35 U.S.C. §112, first paragraph. Thus, Appellants’ specification does provide those of ordinary skill in the art with a sufficient